



RAMAGYA SCHOOL, NOIDA

IX/MATHS/2018-19

OLYMPIAD PRACTICE WORKSHEET

(Concept based)

1. The value of k for which $(x + 2)$ is a factor of $(x + 1)^7 + (3x + k)^3$ is _____
(A) -7 (B) 7 (C) -1 (D) $-6 - 3^{7/3}$
2. Find the remainder when the expression $3x^3 + 8x^2 - 6x + 1$ is divided by $x + 3$
(A) 1 (B) 10 (C) 6 (D) 0
3. The linear equation $y = 2x + 3$ cuts the y -axis at _____
(A) (0, 3) (B) (0, 2) (C) $(\frac{3}{2}, 0)$ (D) $(\frac{2}{3}, 0)$
4. The coordinate axis divides the plane into _____
(A) 1 part (B) 2 parts (C) 3 parts (D) 4 parts
5. The axis on which the points (0, -4) lie, is _____
(A) positive x -axis (B) negative x -axis (C) positive y -axis (D) negative y -axis

(Application based)

6. The value of $(x - a)^3 + (x - b)^3 + (x - c)^3 - 3(x - a)(x - b)(x - c)$, when $a + b + c = 3x$ is _____
(A) 3 (B) 2 (C) 1 (D) 0
7. Value of R if $\frac{a^2 - 19a - 25}{a - 7} = a - 12 + \frac{R}{a - 7}$
(A) -109 (B) -88 (C) -84 (D) -64
8. (2, 1) is a point which belongs to the line _____
(A) $x = y$ (B) $y = x + 1$ (C) $2y = x$ (D) $xy = 1$
9. If $(x + 3, 5) = (2, 2 - y)$, then the value of x and y respectively are
(A) 5, 3 (B) -1, -3 (C) 0, -3 (D) 1, 3
10. One set of ordered pair which belongs to a straight line represented by an equation $y = 2x - 1$ is
(A) (1, 1) (B) (2, 1) (C) (1, 2) (D) (3, 1)

(Value based)

11. If a, b, c are all non-zeros and $a + b + c = 0$ then $\frac{a^2}{bc} + \frac{b^2}{ca} + \frac{c^2}{ab} =$ _____
(A) 0 (B) 1 (C) 2 (D) 3
12. When $(x^3 - 2x^2 + px - q)$ is divided by $(x^2 - 2x - 3)$. The remainder is $x - 6$. The values of p and q respectively are _____
(A) -2, -6 (B) 2, -6 (C) -2, 6 (D) 2, 6

